

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A method for setting a firing temperature of cerium carbonate which is to be fired to produce a cerium oxide abrasive having a specific surface S, wherein the cerium carbonate has a fluorine content falling within a range of 10 to 500 ppm by mass, said method comprising the steps of: and the firing temperature is set in accordance with the fluorine content

previously obtaining a relationship between fluorine content f of cerium carbonate and firing temperature t for the cerium carbonate having fluorine content f which firing temperature t provides a cerium oxide abrasive having specific surface area S, for a firing furnace and firing conditions, and

setting the firing temperature of cerium carbonate to be fired for said firing furnace and firing conditions to firing temperature t₁, said cerium carbonate to be fired having fluorine content f₁, said firing temperature t₁ being derived from said previously obtained relationship wherein the fluorine content f is fluorine content f₁.

2. (original): The method for setting a firing temperature of cerium carbonate according to claim 1, wherein said firing temperature is set from the following formula:

$$T = (700 + A) - B[\log (F)]$$

where T denotes the firing temperature (°C) of cerium carbonate to be fired, F denotes the fluorine content (ppm by mass) of cerium carbonate to be fired, and A and B are constants

inherent to a firing furnace and a temperature elevation condition used in said firing, said constants being obtained from the following formulae:

$$T1 = (700 + A) - B[\log (F1)]$$

$$T2 = (700 + A) - B[\log (F2)]$$

where T1 and F1, and T2 and F2, are optimum firing temperatures (°C) and fluorine contents (ppm by mass), respectively, of two cerium carbonates different in fluorine content and predetermined of their optimum firing temperatures.

3. (withdrawn): A method for producing a cerium oxide abrasive comprising firing a raw material of cerium carbonate, in which the temperature of said firing is set in accordance with the method as set forth in claim 1 or 2.

4. (withdrawn): A method for producing a cerium oxide abrasive, characterized in that the method comprises firing a raw material of cerium carbonate having a fluorine content F (ppm by mass) falling within a range of 10 to 500 ppm by mass, at a firing temperature T (°C) selected within a temperature range defined by the following formula:

$$730 - 14[\log(F)] \leq T \leq 790 - 10[\log(F)].$$

5. (withdrawn): The method for producing a cerium oxide abrasive according to claim 3, wherein the cerium carbonate has a fluorine content falling within a range of 50 to 300 ppm by mass.

6. (withdrawn): The method for producing a cerium oxide abrasive according to claim 3, further comprising removing soluble fluorine from the cerium oxide abrasive.

7. (withdrawn): Cerium oxide abrasive lots produced through the method as set forth in claim 3, wherein the cerium oxide abrasive lots contain soluble fluorine in an amount falling within a range of 20 to 1000 ppm by mass based on the mass of the cerium oxide.

8. (withdrawn): The cerium oxide abrasive lots according to claim 7, wherein the cerium oxide abrasive lots comprise cerium oxide abrasives having a specific surface area falling within a range of 9.5 to 12.2 m²/g.

9. (withdrawn): A cerium oxide abrasive slurry comprising cerium oxide, water and a dispersant capable of dispersing cerium oxide, wherein said cerium oxide is obtained from the cerium oxide abrasive lots as set forth in claim 7.

10. (withdrawn): A method for producing a cerium oxide abrasive slurry, comprising the method for producing a cerium oxide abrasive as set forth in claim 3.

11. (withdrawn): The method for producing a cerium oxide abrasive according to claim 4, wherein the cerium carbonate has a fluorine content falling within a range of 50 to 300 ppm by mass.

12. (withdrawn): The method for producing a cerium oxide abrasive according to claim 4, further comprising removing soluble fluorine from the cerium oxide abrasive.

13. (withdrawn): Cerium oxide abrasive rods produced through the method as set forth in 4, wherein the cerium oxide abrasive rods contain soluble fluorine in an amount falling within a range of 20 to 1000 ppm by mass based on the mass of the cerium oxide.

14. (new): The method according to claim 1, wherein the firing temperature is 690 to 780°C.